



Docket No. 1293.1318

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of :

Bong-gi KIM :

Serial No. 10/076,075 : Group Art Unit: 2627

Filed: February 15, 2002 : Examiner: Peter Vincent Agustin

For: APPARATUS AND METHOD OF COMPENSATING FOR DEVIATION BETWEEN
OPTICAL AXES

REPLY BRIEF

Commissioner for Patents
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Sir:

In response to the Examiner's Answer mailed May 16, 2007 in the above-identified application, Appellants submit this Reply Brief.

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I. **Grounds of Rejection**

In item 9, the Examiner's Answer states, "Claims 1, 3-15, 17, & 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ando et al. (US 6,392,977) in view of Ono et al. (US 5,659,531) and the admitted prior art."

The grounds of rejection in item 9 on pages 3-6 of the Examiner's Answer are substantially similar to those that were listed in the Final Office Action mailed July 25, 2006, and have been traversed in the Appeal Brief.

II. **Response to Arguments**

The Examiner's response to Appellant's arguments presented in the Appeal Brief are provided in item 10 (a through f) on pages 6-9 of the Examiner's Answer. Appellant respectfully submits that the references taken individually or in combination do not teach the "beam splitter" recited in the claims. Appellant has addressed both the deficiencies of the individual references as well as the combination of the individual references in the Appeal Brief and Appellant responds to the specific assertions made in (a) through (f) of item 10 of the Examiner's Answer below.

A. Item (a) of Examiner's Answer

In item (a), the Examiner' Answer states,

"The Board is directed to claim 1, lines 12-17, which recites a beam splitter having a first surface and 'a second surface on which a hologram is formed to compensate for a deviation between optical axes of the first and second light beams transmitted through the first surface.'...the examiner concedes that the beam splitter of Ando et al. does not have 'a second surface on which a hologram is formed.' To show this missing feature, the Ono et al. reference was relied upon for teaching a beam splitter having a surface on which a hologram is formed (see Figure 11A, element 216). Ono et al. teach that this arrangement enables to make a compact, light weight, and low cost optical head device (see the last three lines of abstract). Therefore, by arguing that Ono et al. do not teach a beam splitter having a second surface on which a hologram is formed to compensate for a deviation between optical axes of the first and second light beams transmitted through the first surface, the Appellant is attacking references individually where the rejection is based on a combination of references."

Appellant notes that the Examiner concedes that Ando et al.'s beam splitter does not have a second surface on which a hologram is formed. In response to the remaining assertions made in item (a) of the Examiner's Answer, Appellant respectfully traverses the remaining assertions and provides the following comments.

With respect to Ono et al., Ono et al. discloses a hologram element 216, which is formed for diffracting beams reflected from an optical disk 214. More specifically, the hologram element 216 is configured such that the back surface thereof constitutes a birefringement diffraction grating polarizer of a reflection type. The light from a semiconductor laser 210 is incident on the hologram element 216 where the light is reflected without being diffracted at the grating layer therein. The reflected beams are collimated and converged on the optical disk 214. The beams reflected at the optical disk 214 return through the common path and are again incident on the hologram element 216. The light is diffracted at the hologram element 216 and the diffracted beams are received by a first photodetector 230 and a second photodetector 231, respectively (col. 7, lines 35 through 61 of Ono et al.).

Although Ono et al. discloses a hologram element 216, Appellant respectfully submits that Ono et al. does not disclose, teach, or suggest at least, "beam splitter having a first surface to reflect the first light beam and the second light beam toward the objective lens and simultaneously transmitting the first light beam and the second light beam, and a second surface on which a hologram is formed to compensate for a deviation between optical axes of the first and second light beams transmitted through the first surface," as recited in claim 1.

More specifically, as shown in Figure 2 and noted in paragraph [0029] of the present application, the first surface of beam splitter 35 is denoted by reference numeral 31 and the second surface on which a hologram is formed is denoted by reference numeral 33. However, Figure 11A of Ono et al. shows a laser beam generated by laser 210 reflecting off of the back surface of hologram element 216. In addition, Figure 11A shows a light beam from optical disk 214, which is also reflected from the back surface of hologram element 216. Therefore, all light beams in Figure 11A of Ono et al. are reflected only by the back surface of hologram element 216, and the back surface of hologram element 216 does not transmit light beams. Accordingly, Appellant respectfully submits that Ono et al. does not disclose the claimed beam splitter.

Because Ono et al.'s hologram element 216 does not disclose, teach, or suggest the "beam splitter" as claimed in claim 1, Ono et al. does not cure the deficiencies of Ando et al. Therefore, even if Ono et al. was combined with Ando et al. as indicated in the Examiner's

Answer, the combination of cited references does not teach the features of the "beam splitter" of claim 1.

More specifically, substituting Ono et al.'s hologram element 216 for beam splitter 7 and dichoric hologram 8 in Figure 1 of Ando et al. would appear to cause light beams coming from the lasers 3a and 3b to be initially reflected toward photodetector 15 instead of transmitted to optical disks 2a and 2b through objective lens 9. The back surface of Ono et al.'s hologram element 216 appears to only reflect light beams onto an optical disk or photodetectors.

Further, Ono et al.'s hologram element 216 does not compensate for a deviation between optical axes of the first and second light beams transmitted through the first surface. However, Ando et al. requires a dichoric hologram 8 to correct spherical aberration produced due to the substrate thickness of optical disc 2a being larger than the substrate thickness of optical disc 2b. Figure 11A and column 7, lines 35-61 of Ono et al. do not even recognize this problem. Instead, only one disc 214 is shown in Figure 11A. Therefore, one having ordinary skill in the art at the time of the invention would not have combined Ono et al.'s hologram element 216 with Ando et al., because Ono's hologram element 216 does not correct spherical aberration produced due to the substrate thickness of optical disc 2a being larger than the substrate thickness of optical disc 2b. Accordingly, Ono et al.'s hologram element 216 cannot be used to achieve the objectives set out in col. 2, lines 35-40 of Ando et al., which is to provide an optical pickup device for optical discs with different recording densities.

Therefore, one having ordinary skill in the art would not have combined these references.

B. Item (b) of Examiner's Answer

In item (b), the Examiner's Answer states, "In response to Appellant's argument on page 17, paragraph 2 that 'neither Ando nor Ono shows a beam splitter capable of forming a hologram...', this language is neither claimed nor supported by the specification. Claim 1 recites that 'a hologram is formed' on a second surface of a beam splitter, which is very different from 'a beam splitter capable of forming a hologram.'"

In response to this assertion, Appellant agrees that claim 1 recites, "beam splitter...having a second surface on which a hologram is formed to compensate for a deviation between optical axes of the first and second light beams transmitted through the first surface."

In the Appeal Brief, Appellant indicates that neither Ando et al. nor Ono et al. taught a beam splitter which compensates for a deviation between optical axes of the first and second light beams transmitted through the first surface. As indicated in the above-referenced paragraph on page 17 of the Appellant's Appeal Brief, Ando et al.'s beam splitter 7 does not form a hologram and Ono et al.'s hologram element 216 does not compensate for a deviation between optical axes of the first and second light beams transmitted through the first surface. Therefore, Ando et al. and Ono et al., taken separately or in combination, do not disclose, teach, or suggest the features of claim 1.

C. Item (c) of Examiner's Answer

In response to item (c) of the Examiner's Answer, the Board is directed to Appellant's response in items (a) and (b) above.

D. Item (d) of Examiner's Answer

In response to item (d) of the Examiner's Answer, the Board is directed to Appellant's response in items (a) and (b) above.

E. Item (e) of Examiner's Answer

In item (e), the Examiner's Answer states,

"In response to Appellant's argument on page 17, paragraph 4 that 'one having ordinary skill in the art would not have been motivated to combine the cited references,' as noted in item (a) above, Ono et al. teach that a beam splitter having a hologram formed on one surface enables to make a compact, light weight, and low cost optical head device (see last three lines of abstract). Furthermore, the inventor's use of a one piece construction, i.e., beam splitter combined with a hologram, instead of the structure disclosed in Ando et al. or the admitted prior art would be merely a matter of obvious engineering design choice. See *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) and MPEP §2144.04, which the court held that it is obvious to make an item integral that was once separate."

Appellant respectfully submits that even if the claimed "beam splitter" of Ono et al. was combined with Ando et al., the combination would not teach the features of claim 1.

Substituting Ono et al.'s hologram element 216 for beam splitter 7 and dichoric hologram 8 in Figure 1 of Ando et al. would appear to cause light beams coming from the lasers 3a and 3b to be initially reflected toward photodetector 15 instead of transmitted to optical disks 2a and 2b through objective lens 9. The back surface of Ono et al.'s hologram element 216 is designed only to reflect light beams onto an optical disk or photodetectors.

Further, Ono et al.'s hologram element 216 does not compensate for a deviation between optical axes of the first and second light beams transmitted through the first surface. However, Ando et al. requires a dichoric hologram 8 to correct spherical aberration produced due to the substrate thickness of optical disc 2a being larger than the substrate thickness of optical disc 2b. Figure 11A and column 7, lines 35-61 of Ono et al. do not even recognize this problem. Instead, only one disc 214 is shown in Figure 11A. Therefore, one having ordinary skill in the art at the time of the invention would not have combined Ono et al.'s hologram element 216 with Ando et al., because Ono's hologram element 216 does not correct spherical aberration produced due to the substrate thickness of optical disc 2a being larger than the substrate thickness of optical disc 2b. Accordingly, Ono et al.'s hologram element 216 cannot be used to achieve the objectives set out in col. 2, lines 35-40 of Ando et al., which is to provide an optical pickup device for optical discs with different recording densities.

Therefore, one having ordinary skill in the art would not have combined these references.

With respect to the assertion in the Examiner's Answer that inventor's use of a beam splitter combined with a hologram as one piece instead of a beam splitter separate from a dichoric hologram as taught by Ando et al. is obvious, Appellant respectfully traverses this assertion.

As indicated above, Ono et al.'s hologram element 216 includes a back surface designed only to reflect light beams onto an optical disk or photodetector. However, claim 1 recites, "beam splitter having a first surface to reflect the first light beam and the second light beam toward the objective lens and simultaneously transmitting the first light beam and the second light beam, and a second surface on which a hologram is formed to compensate for a deviation between optical axes of the first and second light beams transmitted through the first

surface." Because Ono et al.'s hologram element 216 is different from the "beam splitter" of claim 1, the "beam splitter" of claim 1 is not an obvious design choice.

In *Larson* (referred to in the Examiner's Answer), the court could not find any difference between a brake drum integral with a clamping means and a brake disc rigidly secured to the clamping means. Both devices in *Larson* had very similar or the same features. However, as indicated above, Ono et al.'s hologram element 216 is entirely different from the "beam splitter" of claim 1. Accordingly, the "beam splitter" of claim 1 is not an obvious design choice.

Therefore, Ando et al. and Ono et al., taken separately or in combination, do not disclose, teach, or suggest the features of claim 1.

F. Item (f) of Examiner's Answer

In item (f), the Examiner's Answer states,

"In response to Appellant's argument on page 17, paragraph 4 that Ono does not recognize the problem of spherical aberration due to substantive thickness: (1) this limitation is not recited in the rejected claims; (2) this argument attacks references individually where the rejection is based on a combination of references. Note that the primary reference, Ando et al. can be relied upon for recognizing the problem of spherical aberration (see abstract); and (3) it is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by the applicant..."

Appellant agrees that the claims do not include the term "spherical aberration due to substantive thickness." However, the above argument in the Appellant's Appeal Brief indicates one of the reasons why one having ordinary skill in the art would not have combined Ando et al. and Ono et al. together. One of the reasons is Ono et al.'s hologram element 216 provides a different result than Ando et al.'s beam splitter 7 and dichoric hologram 8.

G. Item (g) of Examiner's Answer

In response to item (g) of the Examiner's Answer, the Board is directed to Appellant's response in items (a) through (f) above.

H. Conclusion

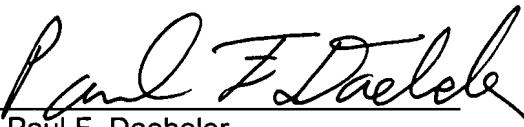
As discussed above, Appellant respectfully submits that claims 1, 3-15, 17, and 18 are patentably distinguishable from the cited references. Accordingly, withdrawal of the rejection of claims 1, 3-15, 17, and 18 under 35 U.S.C. §103(a) is respectfully requested.

If there are any additional fees associated with filing of this Reply Brief, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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